CLAIMS

What is claimed is:

1	1. An apparatus comprising:		
2	a mask protective device including a transparent portion that is transparent to a		
3	photolithography radiation;		
4	a patterned mask including a pattern defined at least in part by an opaque		
5	portion that is opaque to the particular photolithography radiation;		
6	a wall to connect the mask protective device with the patterned mask, the mask		
7	protective device, the patterned mask, and the wall defining a gas-filled enclosure; and		
8	a vent to add a first gas to the enclosure and to remove a second gas from the		
9	enclosure, the first gas having a substantially different composition than the second		
10	gas.		
1	2. The apparatus of claim 1, wherein the mask protective device is		
2	attached to the patterned mask with an adhesive.		
1	The apparatus of claim 1, further comprising a gas source having a		
2	higher concentration of the first gas than the enclosure and a lower concentration of		
3	the second gas than the enclosure and connected with the vent to add the first quantity		
4	of the first gas to the enclosure through the vent.		
1	4. The apparatus of claim 1, wherein the vent includes a first enclosure		
2	opening defined by the wall and a second enclosure opening defined by the wall.		
1	5. The apparatus of claim 4, wherein the wall has a first side and a second		
2	side opposite the first side, and wherein the first enclosure opening is in the first side		
3	and the second enclosure opening is in the second side.		

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1	6.	The apparatus of claim 1, further comprising a radiation source to			
2	generate radia	tion with a different wavelength than the photolithography radiation to			
3	transmit radia	tion through the enclosure to increase the rate of diffusion of the gas in			
4	the enclosure.				
1	7.	The apparatus of claim 1, further comprising a rotary vacuum			
2	generator, the	rotary vacuum generator including a rotor and a compression chamber			
3	to reduce the	total pressure inside the enclosure to below 500 millimeters of mercury.			
1	8.	The apparatus of claim 1, wherein the first gas that has a higher			
2	transmissivity	for the photolithography radiation than the second gas.			
1	9.	The apparatus of claim 1, wherein the vent has a surface area on the			
2	wall that is at	least five percent of a total surface area of the wall.			
l	10.	The apparatus of claim 1, wherein the vent comprises:			
2	an inle	et opening defined by the wall to add a first gas to the enclosure; and			
3	an out	let opening defined by the wall to remove a second gas from the			
4	enclosure.				
1	11.	The apparatus of claim 10, further comprising:			
2		a gas source having the first gas at a pressure that is higher than the			
3	pressure of the enclosure and connected with the inlet opening to add the first gas to				
4	the enclosure	through the inlet opening; and			
5	a gas o	destination having a volume at a pressure that is lower than the pressure			
6	of the first gas at the gas source and connected with the outlet opening to remove the				
7	second gas fro	om the enclosure through the outlet opening.			

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ı	12.	The apparatus of claim 10, wherein the wall has a first side and a		
2	second side opp	posite the first side, and wherein the inlet opening is in the first side of		
3	the wall and the	e outlet opening is in the second side of the wall.		
1	13.	The apparatus of claim 10, wherein the inlet opening includes a		
2	plurality of disc	crete ports.		
1	14.	The apparatus of claim 10, wherein the first gas absorbs less of the		
2	photolithograp	hy radiation than the second gas.		
1	15.	An apparatus comprising:		
2	a mask	protective device including a transparent portion that is transparent to a		
3	particular photolithography radiation;			
4	a patter	ned mask including a pattern defined at least in part by an opaque		
5	portion that is	opaque to the particular photolithography radiation;		
6	a wall t	o connect the mask protective device with the patterned mask, wherein		
7	the mask prote	ctive device, the patterned mask, and the wall define an enclosure; and		
8	a gas fi	lling the enclosure, the gas having a transmissivity of the		
9	photolithograp	hy radiation greater than that of the surrounding ambient air.		
1	16.	The apparatus of claim 15, wherein the mask protective device is		
2	attached to the	patterned mask with an adhesive.		
1	17.	The apparatus of claim 15, wherein the gas filling the enclosure		
2		an 10% molecular oxygen by volume.		
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1	18.	A method comprising:		

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2	adding a first gas to an enclosure filled with a second gas through a				
3	vent, the first gas having a different composition than the second gas, and the				
4	enclosure being between a mask protective device having a portion that is transparent				
5	to a photolithography radiation, a patterned mask having a portion that is opaque to the				
6	photolithography radiation, and a wall connecting the mask protective device with the				
7	patterned mask; and				
8	removing the second gas from the enclosure through the vent.				
1	19. The method of claim 18, wherein adding the first gas comprises adding				
2	the first gas through an inlet opening of the vent, and wherein removing the second				
3	gas comprises removing the second gas through an outlet opening of the vent.				
1	20. The method of claim 19, wherein adding comprises driving the first gas				
2	into the enclosure through the inlet opening by pressure, and wherein removing				
3	comprises simultaneously driving the second gas from the enclosure through the outlet				
4	opening by pressure.				
1	21. The method of claim 18, wherein adding a first gas comprises adding a				
2	molar quantity of gas substantially similar to the molar quantity of the second gas in				
3	the enclosure before adding begins.				
1	22. The method of claim 18, wherein adding comprises adding a first gas				
2	that has a higher transmissivity for the photolithography radiation than the second gas.				
1	23. The method of claim 18, wherein:				
2	adding the first gas comprises providing a higher concentration of the first gas				
3	on an outside of the enclosure than on an inside of the enclosure proximate the vent				
4	and adding the first gas to the enclosure by diffusion; and				

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5	removing the second gas comprises providing a lower concentration of the		
6	second gas on an outside of the enclosure than on an inside of the enclosure proximate		
7	the vent and removing the second gas from the enclosure by diffusion.		
1	24. The method of claim 23, wherein adding the first gas comprises adding		
2	the first gas through at least two openings of the vent, and wherein removing includes		
3	removing the second quantity of the second gas through the at least two openings.		
1	25. The method of claim 18, further comprising transmitting radiation		
2	having a different wavelength than a wavelength of the photolithography radiation		
3	through the enclosure to increase the diffusion coefficient of a molecule in the		
4	enclosure.		
1	26. The method of claim 18, further comprising reducing the total pressure		
2	inside the enclosure to below 500 millimeters of mercury.		
1	27. The method of claim 18, wherein adding comprises adding a first gas		
2	that has a higher transmissivity for the photolithography radiation than the second gas.		
1	28. A method comprising:		
2	attaching a mask protective device having a portion that is transparent		
3	to a photolithography radiation to a wall, the wall being attached to a patterned mask		
4	having a portion that is opaque to the photolithography radiation, the attaching		
5	enclosing a volume of a second gas between the mask protective device and the		
6	patterned mask;		
7	adding the first gas to the enclosed volume of the second gas, the first gas		
8	having a different composition than the second gas; and		
9	removing the second gas from the enclosed volume.		

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- 1 29. The method of claim 28, further comprising transmitting the
- 2 photolithography radiation through the mask protective device for a predetermined
- 3 period of time.
- 1 30. The method of claim 28, wherein attaching comprises attaching with an

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2 adhesive.

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